

Expert Report of Dr. Elizabeth Becker, Revised Version – Redacted

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA, SAN JOSE DIVISION

IN RE: HIGH-TECH EMPLOYEE
ANTITRUST LITIGATION

THIS DOCUMENT RELATES TO:

ALL ACTIONS

Master Docket No. 11-CV-2509-LHK

**EXPERT REPORT OF ELIZABETH
BECKER, PH.D.**

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I. Introduction and Assignment**A. *Plaintiffs' Allegations***

1. I understand that Plaintiffs allege Defendants Adobe Systems Inc. (“Adobe”), Apple Inc. (“Apple”), Google Inc. (“Google”), Intel Corp. (“Intel”), Intuit Inc. (“Intuit”), Lucasfilm Ltd. (“Lucasfilm”) and Pixar (collectively, “Defendants”) agreed that pairs of defendants would enter bilateral agreements to refrain from cold calling each other’s employees or other forms of solicitation.¹ Plaintiffs claim the alleged conspiracy suppressed compensation to artificially low levels for all or nearly all members of the Class.²

2. On October 28, 2013, Plaintiffs served the Expert Witness Reports of Edward E. Leamer, Ph.D., Kevin F. Hallock, Ph.D., Alan Manning, Ph.D., and Matthew Marx, Ph.D. Dr. Leamer asserts that cold calling is part of the normal information dissemination process, and that the alleged “do not cold call” (“DNCC”) agreements limited the flow of information about job opportunities and market conditions, which in turn slowed down the price discovery process and ultimately suppressed compensation for some Class members.³ He further asserts that the suppression propagated to all Class members because of what he calls “semi-rigid” pay structures at each Defendant company.

3. For his part, Dr. Hallock “predicts that any suppression of compensation that occurred due to the DNCC agreements “could be expected” to propagate to all or nearly all Class members.⁴ He admits that he has not examined whether any propagation actually occurred and has not examined data to test his predictions or the basis for the predictions.⁵ Instead, Dr. Hallock supports his propagation idea with: (1) the existence of a formal compensation system; (2) the concept of internal equity; (3) a notion Dr. Hallock refers to as “top of the box”; (4) Defendants’ use of market data as a benchmark for internal salary ranges and for salary increase budgets; and (5) market pressure’s effect on the annual salary increase budgets.

4. Finally, Dr. Manning contends that wage suppression is likely to have extended to the entire Class because (1) employees commonly use the experience of friends and colleagues as sources of information about labor market opportunities, thus the effects on those who lost out on

¹ Consolidated Amended Complaint, September 13, 2011.

² I understand that the Court certified a Class, defined as “All natural persons who work in the technical, creative, and/or research and development fields that are employed on a salaried basis in the United States by one or more of the following: (A) Apple from March 2005 through December 2009; (b) Adobe from May 2005 through December 2009; (c) Google from March 2005 through December 2009; (d) Intel from March 2005 through December 2009; (e) Intuit from June 2007 through December 2009; (f) Lucasfilm from January 2005 through December 2009; or (g) Pixar from January 2005 through December 2009, excluding retail employees, corporate officers, members of the boards of directors, and senior executives. See Order Granting Plaintiffs’ Supplemental Motion for Class Certification, October 24, 2013.

³ Expert Report of Edward E. Leamer, Ph.D., October 28, 2013, ¶¶ 9-11.

⁴ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 8f.

⁵ Hallock Deposition, November 17, 2013, 302:11-303:1 (“I didn’t study whether compensation was impacted. . . . I didn’t study actual data on impact . . .”).

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a cold call would be magnified; and (2) the principle of internal equity constrained managers' ability to give counter-offers, thus an employer concerned about recruiting by a competitor has an incentive to adjust the entire pay system to counteract the impact of recruiting, rather than make individual counteroffers.⁶

B. *Description of Assignment*

5. Counsel for Adobe, Apple, Google, and Intel have asked me to evaluate whether the above assertions by Dr. Hallock, Dr. Manning, and Dr. Leamer are consistent with (i) the facts of the case; (ii) Defendants' actual employment policies and practices; (iii) economic theory; (iv) measurable employment outcomes of the Class members; and (v) my professional experience having studied employment compensation structures and practices for nearly 20 years. I have further been asked to offer my opinion regarding whether Dr. Hallock and Dr. Manning have demonstrated that a suppression of wages to some employees would affect all or nearly all Class members.

II. Qualifications, Terms of Engagement and Materials Relied Upon

6. I am a Senior Vice President at NERA Economic Consulting, a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. I have a Ph.D. in applied economics from Clemson University. I have substantial experience in preparing economic and statistical assessments for both plaintiffs and defendants in numerous matters involving single plaintiff and class action allegations of employment discrimination, class action allegations of violations of wage and hour regulations, warranty claim and consumer Class action matters, and allegedly inappropriate police stop and frisk activity. I have given testimony in deposition, trial, and arbitration more than 35 times. My empirical research has been published in peer-reviewed academic publications.

7. I have specific experience evaluating compensation structures. I have been previously retained by employers to evaluate their compensation structures and to compare pay for comparable employees and to analyze potential compression issues. I have engaged in hundreds of analyses of pay equity, both for base pay and for total compensation, conducted with a primary objective of testing whether women and minorities are paid fairly relative to white males. These analyses have been conducted for about 35 to 40 employers from a broad spectrum of industries, involving hundreds of subgroups of employees. My work has required me to consider whether it is appropriate to conduct aggregate analyses for all employees of a firm or to disaggregate by job function, job level or grade, or organizational unit. My qualifications, a listing of my publications and a listing of my prior testimony over the past four years are detailed on my curriculum vitae, attached as **Attachment 1**.

8. NERA Economic Consulting bills for time and expenses incurred on a monthly basis in this matter. My billing rate in this matter is \$550 per hour. Our fees are not contingent upon the outcome of the case.

⁶ Expert Report of Alan Manning, October 28, 2013, ¶ 8.

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9. I have reviewed and analyzed Plaintiffs' Consolidated Amended Complaint, Expert Witness Reports, materials cited by Plaintiffs' experts, deposition transcripts and exhibits, declarations and exhibits, other relevant documents produced during the course of discovery, Defendants' compensation data, and Plaintiffs' experts' backup data. **Attachment 2** is a list of materials that I have reviewed and analyzed, with the support of my NERA staff. If additional documents and other information are brought to my attention, I reserve the right to supplement my opinion as appropriate.

III. Summary of Opinions

10. I disagree with Dr. Hallock and Dr. Manning's opinions that any compensation suppression caused by the DNCC agreements "would be expected to" or "is likely to" have propagated to all or nearly all members of the Class. The evidence in this case is inconsistent with—and in many instances, directly refutes—their opinions.

11. Drs. Hallock, Manning, and Leamer rely on the "importance" of internal equity and how it *could* have been used by each Defendant. Although not explicitly stated in their reports, the implication of their opinions is that notions of internal equity required adjustments to compensation when adjustments were made to some employees, either immediately or over time, and either made at the manager level or at the firm level. This is not only contrary to the evidence, but also contrary to my years of experience addressing pay equity issues. Internal equity is the notion that managers should consider the pay of similarly performing employees, doing similar work, when setting an individual's pay. Internal equity is but one factor considered by managers in setting pay for individuals, and did not require managers to make adjustments to others when one individual's compensation was impacted. Moreover, the concept is not typically used at a company-wide level to make automatic adjustments to large groups of employees. There is no reason that internal equity would impact workers who are doing dissimilar work, who perform at different levels, or who have other differentiated attributes.

12. Defendants' compensation data reveal significant variance in base salary across employees. This is true for the entire time period and across the major salary grades and job codes for a significant majority of the Class members. This indicates that salary, even within the formal structures, is based on highly individualized characteristics. Defendants relied on managers to make individual performance assessments and compensation decisions based on those assessments while considering internal equity. This runs counter to Dr. Hallock and Dr. Manning's description of a system in which a wage increase for some Class members would spread to increases for all.

13. Dr. Hallock and Dr. Manning pay little attention to bonus and equity compensation in their reports. Dr. Hallock asserts that "there is substantial evidence in general, that stock . . . as a fraction of total compensation is correlated with job level and salary."⁷ However, bonus is a key way to pay for performance and differentiate employees beyond base salary. It is also used to retain employees. Moreover, equity is an important tool for retaining employees and is expected to be differentiated across employees. Contrary to Dr. Hallock's assertion, which he made no

⁷ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 31.

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effort to support with facts or data, the data show that bonus and equity are not fixed to base salary and vary highly across employees, time and Defendants.

14. Analyses of individuals who received large bonus and retention packages compared with other employees in the same job title show that these types of bonus and retention packages do not propagate broadly to other employees. And there is no evidence or reason to believe that they would have propagated across job titles to employees doing different work.

15. Dr. Hallock's "top of the box" notion has no support in the record, does not comport with my experience with compensation structures, and was not tested by him. According to Dr. Hallock, if base salary is restricted for those at the top of the salary range ("top of the box"), then the salary ranges may stop growing, which could have a cascading effect on others below the top. As an initial matter, this is based on a miscomprehension of how Defendants set salary ranges. Salary ranges were determined by market data, independent of where employees' actual base salaries fit within the ranges. If an employee received a raise that put her higher in the range or outside of the range, the ranges were not adjusted. Second, Dr. Hallock's idea is based on the assumption that Defendants required fixed ratios between employees to be maintained so that the movement of one person resulted in the movement of others. There is no evidence of this. Third, Dr. Hallock's theory ignores the fact that employees can be promoted to another position, and thus, be placed in another "box," with no impact on the structure. Nor does this theory have any application when Defendants use a one-time bonus or equity grant as retention tools.

16. The level of employee movement among Defendants, combined with the multiple unrestrained channels of recruiting, demonstrate the lack of a price discovery problem resulting from the challenged agreements. The low number of cross-Defendant hires during and outside the alleged conduct period demonstrates that the vast majority of recruiting remained unaffected by the DNCC agreements.

17. Defendants are a small part of the overall market for technically skilled labor, nationally and in the San Francisco Bay area. Class members consistently earned more on average than labor market comparators and that premium increased during the conduct period even in markets where Defendants had larger market share.

18. In addition to relying on internal equity, Dr. Hallock bases his prediction of propagation on the premise that if market compensation was suppressed due to the DNCC agreements, then internal compensation levels could also be suppressed through the Defendants' use of benchmarking data. He has no support for this opinion and has made no effort to evaluate what surveys were used, what information each Defendant provided to each survey, what each Defendant received from each survey, and how each Defendant used the information along with other information considered. First, there is no evidence to suggest that market compensation or market data were in fact suppressed; that would be highly unlikely given the Defendants' small share of any relevant labor market. Second, Defendants did not use the same compensation benchmarking data, nor did they use the data in the same way. For example, Lucasfilm benchmarks to nationwide data from Croner Games survey for compensation in the video game industry, which none of the other Defendants used. Thus, suppression of compensation in the Croner Games survey data would have no impact on other Defendants. Third, each Defendant

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benchmarked against a large group of firms. Fourth, most Defendants used job title specific market data to benchmark internal salary ranges. This means that suppressed data for one job title would not affect internal salary ranges for other job titles. Fifth, managers could assess individual performance and make individual pay decisions within broad salary ranges. Thus, any effect would not have been felt by all or substantially all Class members.

IV. The Concept of Internal Equity Does Not Act As a Source of Pressure That Forces Compensation Increases Across the Class

19. Dr. Hallock suggests that wage suppression is expected to propagate from some employees to all or nearly all Class members because Defendants each had a formal compensation structure and each cared about internal equity. While Defendants had formalized systems (e.g., a human resources department, a compensation administering system, etc.), this is irrelevant to the issue of whether Defendants had systems in which compensation changes for some would propagate to compensation changes for all others.

20. To demonstrate the errors of Plaintiffs' claims, it is helpful to walk through the purported steps of propagation according to the Plaintiffs' assertions. First, a number of employees would receive cold calls about job opportunities and would take the time to learn about the opportunities (either read the "cold email" or stay on the line for a "cold call"). Second, recruiters on the calls would convey compensation information to the employees, suggesting the employees could receive higher compensation elsewhere. Third, the employees would either pursue the opportunities and successfully land new positions, or would bring these opportunities to the attention of their managers to negotiate higher compensation. In the latter scenario, the managers would need to agree to pay the employee higher compensation (rather than try to persuade the employee to stay without compensation, propose a change in title, negotiate non-pecuniary benefits, or simply let the employee leave). This would then, under Plaintiffs' theory, allegedly put "pressure" on the managers to increase compensation not just for similar employees within the group but also for all dissimilar employees. Ultimately, this "pressure" would allegedly spread to other managers (who potentially supervise employees that were not cold-called and perform different work from the employees in the first group) and these managers in turn would allegedly respond to this "pressure" by increasing pay for their employees. Alternatively, according to Plaintiffs' experts, because of pockets of "pressure," the company would increase the compensation of its entire workforce in a pre-emptive or reactive response.

21. The evidence in this case does not support this alleged propagation. Defendants' compensation data show that Defendants implemented compensation systems within which some employees' compensation could be adjusted without necessitating a change in other employees' compensation. Defendants left compensation assessments in the hands of individual managers so as to permit managers to evaluate their employees' performance, talent, potential, contribution to the firm, and various other individualized attributes. Defendants' compensation philosophies promoted pay for performance, and the wide variation in actual compensation outcomes is consistent with such systems. The discretion and flexibility is reflected in the data. As discussed in detail below, individual compensation varied significantly from one employee to another, both in terms of base salary and in terms of equity and bonus compensation. This is true within a grade or job title, across grades or job titles, and across Defendants. This significant variation is

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at odds with a compensation structure that is expected to propagate a compensation change for one or some individuals to all or nearly all Class members.

22. Dr. Hallock contends that a “ripple” of wage suppression could nonetheless be expected to occur because maintaining internal equity was “important” to Defendants. According to Dr. Hallock, “[t]he idea behind equity theory is that workers will be motivated when their perceived input (e.g., effort) match their perceived output (e.g., pay). If someone thinks she is being unfairly paid (e.g., others are being paid more for the same perceived effort), she will become uncomfortable and unmotivated.”⁸ He further asserts “if a particular employee or group of employees is not called due to cold-calling restrictions, there will be less pressure on the compensation of similar workers.”⁹ Dr. Hallock contends that propagation may not be limited to similar workers, “as restrictions on the compensation of workers in one job type can lead to suppression in other jobs” due to internal equity.¹⁰

23. Dr. Manning similarly asserts that concerns about internal equity could transmit suppression of pay from one individual to a large portion of the Class.¹¹ Dr. Manning states that internal equity acts as a constraint on managers’ ability to give counter-offers to fend off recruiting efforts by other companies, thus inducing employers who are concerned about competitors’ recruiting efforts to adjust the entire pay system to counteract the impact of recruiting (rather than making individual counteroffers).¹²

24. To reach their conclusions, Dr. Hallock and Dr. Manning rely on descriptions of generic compensation concepts and over-simplified descriptions of fragments of Defendants’ compensation systems. In many instances, Dr. Hallock’s descriptions of the generic compensation system conflict with the way Defendants actually operate. And neither has looked at the compensation data that reflect what decisions were actually made.

25. Based on my review of the testimonial and documentary evidence, in conjunction with my empirical analyses discussed below, I conclude that although Defendants considered internal equity, it was not a mechanism that automatically spread or would require spreading a pay increase for some employees to all employees within or across job titles, within or across grades, or within or across companies.

26. The evidence shows that managers were trained to consider internal equity as one factor among many when making pay decisions. As part of the pay for performance philosophy, individual pay was based on highly individualized attributes such as current performance, past performance, talent, skills, education, demand, the judgement of the manager making the compensation determination, the project the individual is working on, budget, and many other factors. For example, Human Resources personnel at Defendant companies stated that:

⁸ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 190.

⁹ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 23.

¹⁰ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 235.

¹¹ Expert Report of Alan Manning, October 28, 2013, ¶ 57.

¹² Expert Report of Alan Manning, October 28, 2013, ¶¶ 8, 64-67.

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- Adobe encourages its managers to consider internal equity as one factor when making compensation decisions to ensure differentiation in pay based on performance and contribution;¹³ Adobe's compensation policy has always been to pay employees based on performance and expected future contribution to the company, among other factors;¹⁴
- "At Apple, each manager has the latitude to determine what is appropriate to pay an individual . . . for promotional increase. Internal equity may or may not factor into their ultimate decision";¹⁵ "I would say that [at] Apple, we don't try to control consistency, that we look at the individual's merit, scope of responsibility, achievements, background, and they're always individual decisions";¹⁶
- Intel's compensation system and structure is set up to have variability based on merit and performance.¹⁷ When asked "just focusing on internal equity concerns for a second, did you believe or do you understand, based on your HR job, that having variability between employee compensation with the same job title created problems from a compensation or benefits perspective at Intel?," Patricia Murray of Intel stated, "There are people with the same job title who have been in that job ten years and have been outstanding performers for ten years, people who are brand-new to that job title, and there are people who are -- perhaps have been in the job for a long time who have been successful versus outstanding performers. They would be paid different amounts of money. And I would not consider that to be a problem. In fact, I would consider that to be the system working properly.;¹⁸
- "Google pays its employees based on highly individualized and performance based assessments";¹⁹ that "the view at Google is that pay should be varied across individuals based on performance, progression, and value to the company";²⁰
- For Intuit, when asked, "do you pay any attention to people that have the same experience, same performance same job being paid similarly?," Sherry Whiteley responded: "When we make offers, it is one of the inputs. We see what other people are making in that department, but we're not—we're not solving for it. It is just one of the inputs";²¹ "All our focus in training on compensation is paying for

¹³ Arriada-Keiper Deposition, 123:19-25; 250:25-251:11 and Streeter Deposition, 90:1-15; 175:8-13.

¹⁴ Arriada-Keiper Deposition 68:18-21, 88:15-25, 105:10-13, 105:18-22, 176:22-177:2, 184:14-185:6; Streeter Deposition 115:5-7; Declaration of Donna Morris ¶ 6; Morris Deposition 117:20-118:1.

¹⁵ Burmeister Deposition, 64:13-17.

¹⁶ *Id.* 165:25-166:5.

¹⁷ Murray Deposition, 185:23-25; see also McKell Deposition, 69:13-19, 188:14-189:25.

¹⁸ Murray Deposition, 184:24-185:16.

¹⁹ Wagner Declaration, ¶¶ 4-5.

²⁰ Bock Deposition, 48:25-49:4; Brown Deposition, 68:5-24.

²¹ Whiteley Deposition, 103:22-104:3.

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performance... We specifically train not to focus on internal equity in paying people the same”;²²

- For Pixar, “[w]ith an existing employee we evaluate performance,... contributions to the studio, [and] the number of projects [they’ve worked on].... And then we look at where they are in the range relative to those things and determine whether they’re in the right place given their performance”;²³
- For Lucasfilm, “two components of salary determination are performance and competitive market data”;²⁴ and also for Lucasfilm, a recruiter testified that all of her salary increases were attributed to good performance.²⁵

27. This evidence also shows that internal equity is considered at the individual level. That is, individual managers weigh internal equity, along with all other considerations, when assessing the compensation of an individual employee. I have not seen any evidence in this case, nor have I seen any evidence in my years of experience, of internal equity used as a concept that requires company-wide changes to compensation or changes to compensation for groups of employees.

28. Dr. Hallock’s own admissions undermine the claim that the concept of internal equity would be expected or is likely to spread any wage suppression to all Class members. Dr. Hallock testified repeatedly during his June 7, 2013 deposition that internal equity involves comparing similar employees doing similar work.²⁶ This viewpoint is consistent with my experience – internal equity is the notion that similar employees (i.e., employees who are doing similar work, performing at similar levels, have made similar contributions to the company, have similar educational background and experience, have similar potential for future growth, etc.) should be paid similarly to avoid some employees feeling like they are being unfairly treated.

29. I have conducted hundreds of salary equity analyses across a broad spectrum of industries for employers with the specific objective of ensuring fair pay. Typically, the employers I have studied have had grade salary structures, as described by Dr. Hallock. Employers in these cases are interested in finding out whether employees are paid fairly. My input into the process generally involves the evaluation of employee-specific salary residuals, i.e. the difference between an employee’s actual salary and the salary predicted by a multiple regression model that takes into account various factors expected to influence individual employees’ compensation.²⁷

²² Stubblefield Deposition, 111: 2-7.

²³ McAdams Deposition, 31:10-17.

²⁴ Jan Van der Voort Deposition, 19:17-18.

²⁵ Lori Beck Deposition, 31:1-32:8.

²⁶ Hallock Deposition, 192:2-8; 203:15-22; 240:13-241:7; 242:14-21.

²⁷ The relevant factors to be considered vary highly across employers depending upon pay practices and market conditions. Generally, I would seek information on experience of the employees with the company, in the job, and prior experience; the type and level of education; salary plan, grade or band; business unit, division or department; geographic location; job function; exempt status; performance and disciplinary history; evidence of reliability; and evidence of special skills, among others.

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Generally these regressions group employees with others in narrowly defined circles and account for many attributes of the employees in order to form highly similar comparators. Even in a thorough review of this type, adjustments to managers' salary recommendations are extremely rare. Far more common is a personnel file review to identify the unique aspect of an employee's contribution (such as prior experience or specific educational credentials) that explains salary that would otherwise appear out of the ordinary. To the extent adjustments are made, they are made on an individualized basis and often require budgetary approval even for fairly small adjustments due to the tight budget constraints often faced by managers. I have never witnessed an employer that moved a salary grade (or "box" as Dr. Hallock refers to it) in response to the presence of highly paid employees within the grade.

30. This means that, from a theoretical perspective, the concept of internal equity would have no impact on dissimilar employees, even if they share the same position in a formal salary grade structure, and even if they share the same job title in a formal job title structure. Employees who are doing dissimilar work, or performing at different levels, or have otherwise material differences can be paid differently within grade or job title.

31. Dr. Hallock at one point agreed with the idea that internal equity would have no impact on dissimilar employees during part of his June 7, 2013 deposition but later retracted by stating propagation was possible from job title to job title due to internal equity.²⁸ Dr. Hallock's October 28, 2013 Expert Report has likewise added the opinion that restrictions on the compensation of workers in one job type can lead to suppression in other jobs due to internal equity.²⁹ According to Dr. Hallock, each job has its own worth relative to other jobs, and each job is ordered or ranked relative to one another inside an organization.³⁰ These jobs are then aggregated and slotted into a small number of salary grades, maintaining their relative worth; and the grades, in turn, are ranked against each other, with increasing ranges of compensation.³¹

32. At a theoretical level, Dr. Hallock's opinion is contrary to the principle underlying internal equity that only similar employees, doing similar work at the same level of performance and with the same expectations of future contribution should be paid similarly. Employees in different grades or different job titles, or doing dissimilar work, or performing at different levels, or having different expectations of future performance are not comparators for purposes of internal equity.

33. Dr. Hallock's reliance on general, descriptive characterisation as to how the salary grade structure could function does not address the question of how they actually functioned at the Defendant companies. Defendants' actual compensation structures and data make clear that there was ample room to accommodate differentiation in pay, within and across salary grades and within and across job titles, to reflect the individual contributions of employees.

²⁸ Hallock Deposition, 225:1-14 and 258:11-12.

²⁹ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 235.

³⁰ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶¶ 16-17.

³¹ Expert Witness Report of Kevin F. Hallock, October 27, 2013, Figure 2.

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34. There is no evidence that Defendants linked the compensation of one job title to another job title, such that compensation changes in one job title would necessitate compensation changes in another job title. Instead, there is evidence that job titles can be a differentiating factor among employees. In total, there are 3,348 job titles in the Class, consisting of 219 titles for Adobe, [REDACTED] titles for Apple, 415 titles for Intuit, [REDACTED] titles for Google, 1,212 titles for Intel, 184 titles for Lucasfilm, and 204 titles for Pixar.

35. Taking Adobe as an example, its formal salary structure is based on job code.³² That means that each and every job code has its own salary range, and the job codes are not aggregated into grade or other structure.³³ There is no evidence that the compensation within each of the 481 job codes is linked in a fixed manner.³⁴ First, the salary ranges for each job code are set relative to market survey data, not relative to one another.³⁵ Moreover, as shown below, at Adobe the range of pay within job codes is extremely wide, indicating that managers have an opportunity to distinguish among employees within job title. There is no mechanism for transmission of wage suppression across jobs, given the wide range of possible salaries within job.

36. For Defendants that used grade structures, jobs were not fixed within a grade relative to other jobs. Instead, jobs could move in and out of grades, as demonstrated at Lucasfilm.³⁶

37. Moreover, Defendants' grades had large salary ranges, and employees could be paid anywhere within the range, and even at times outside of the range. This shows that Defendants' grade structures accommodated dispersion in salary. For example, Dr. Hallock's Figure 2 shows Google's T salary grades. Dr. Hallock does not make clear that Figure 2 illustrates guidelines for the minimum and maximum base salaries in each grade, not actual ranges of base salaries of employees in job titles within those grades.³⁷ In my **Exhibit A.1**, I have added a summary of actual individual salaries on top of Dr. Hallock's Figure 2 to demonstrate the wide dispersion in individual salaries within the grades.

38. Large variances in salary are apparent even within job titles resting within a single grade.

[REDACTED]

³² Dr. Hallock incorrectly describes all Defendants' compensation structures as based on grades. [REDACTED]

³³ Arriada-Keiper Deposition, 20:4-11.

³⁴ [REDACTED]

³⁵ Arriada-Keiper Deposition, 18:8-18, 20:4-16 [REDACTED]

³⁶ See LUCAS00221117.

³⁷ Expert Witness Report of Kevin F. Hallock, October 27, 2013, Figure 2, also ¶¶ 38, 66, 210 and 229.

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39. In order for Dr. Hallock's broad propagation mechanism to work in this context, we are to believe that a cold call to a [REDACTED] may lead to an increase in his salary through a counteroffer from his manager, and would put pressure first on the other employees within the job title [REDACTED], even though some were already earning as much as [REDACTED]. Then the two RESEARCH SCIENTISTS in Grade T4 would also have to be adjusted, along with the other employees in differentiated job titles within Grade T4. As a consequence of pay in Salary Grade T4 rising, the employees in other salary grades, such as the single [REDACTED], would have experienced upward pressure on his/her salaries, despite being employed at different levels within the organization and performing different jobs.

40. The large variations of salary within job titles (within grade), the fact that salary ranges for different job titles overlap within grade, the occasional nesting of salary ranges for some job titles within others in the same grade, and/or completely disjoint observations of salary ranges for some job titles within grade relative to others, indicate that the salary grade structures generically described by Dr. Hallock in fact accommodate a great deal of scope for managerial evaluation of individual employee attributes. These variations are present not just at Google, but across the other Defendants as well, as I will describe in more detail below.

41. Dr. Hallock further attempts to support his internal equity propagation idea through Defendants' compensation guidelines.³⁹ Dr. Hallock claims that Defendants directed managers to give "relatively lower raises to those who are relatively more highly paid in a given grade for a given performance level."⁴⁰ According to Dr. Hallock, this was a means through which Defendants controlled managerial discretion and forced managers to "bring compensation together."⁴¹

42. As an initial matter, Dr. Hallock glosses over the fact that these were guidelines, not mandates. Managers had the discretion to pay more or less than the guidelines provided them from Human Resources ("HR").

³⁸ Attachment 3 is an Excel database that provides information for each Defendant on the salary minimum, mean, median and maximum for each job title. For Apple, Google and Intel these job titles are reported within salary grade. For Adobe [REDACTED]. For Intuit, Lucasfilm and Pixar information is reported by job title only.

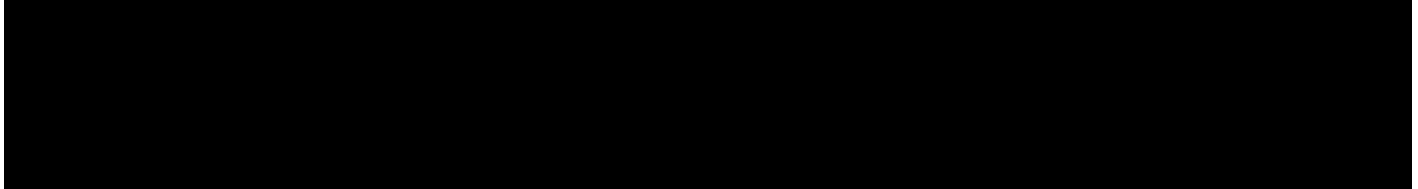
³⁹ Expert Witness Report of Kevin F. Hallock, October 27, 2013, Figures 7-11.

⁴⁰ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 176.

⁴¹ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 188.

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43. Moreover, the figures cited in Dr. Hallock's report in fact do not support his theory. Figures cited by Dr. Hallock demonstrate that managers were trained to give an employee a lower raise if the employee was paid highly in comparison to the market, not to other employees. For example, consider the following Figure 10 from Dr. Hallock's report, which is a reproduction of a salary matrix from Adobe:



44. According to this matrix, managers were recommended to give a high performer who is paid above the mid-point of the salary range (which was pegged to market data), up to 7% of increase in his base salary during the annual review process. This was true regardless of what any other employee was making. Employees were paid relative to the market, not relative to one another. Moreover, Figures 7-11 are nothing more than guidelines given to managers to assist them in paying for performance. Further, employees often move from one job title to another, or from one grade to another, which means guidelines for individuals change over time.

V. Plaintiffs' Experts' Assertions and Hypothetical Constructs Are Not Supported By the Compensation Data

A. *Base Salary: The Data Show That Any Adverse Effects on Base Salary Due To DNCC Agreements Are Not Expected To Be Broadly Propagated Through Defendants' Salary Structures.*

45. Dr. Hallock's Expert Report focuses almost exclusively on the purported ripple effect through Defendants' base salary structures. Thus, in this Section, I analyze base salary.⁴² Specifically, I examine whether adjustments in base salary to employees would be expected to ripple to other individuals and whether the data are consistent with Dr. Hallock's ripple claim. To determine whether propagation actually occurred would require an examination of each compensation decision. One cannot rely on looking at average changes to compensation, which would hide differences as well as the reasons for the differences. Relying on correlations are similarly inadequate and potentially misleading because, among other flaws, they do not tell you why the adjustments were made.

46. One way to test Dr. Hallock's prediction would be to look at actual base salary outcomes to see if the gross data is consistent with his predictions.⁴³ The actual base salary outcomes for a significant majority of Class members show:

⁴² I later address Defendants' equity compensation and bonus compensation in Section B below.

⁴³ This is not the same as determining whether a compensation change for some individuals actually caused compensation changes in others. To do that, one would need to examine and study each compensation decision. My analyses test predictions arising from Dr. Hallock's assertions about the mechanism of pay determination.

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- Variance of salary for incumbent employees within grade at Intel and Apple and within job code at Adobe remained high before, during, and after the conduct period, suggesting salary decisions were made within a flexible structure that allowed managers to assess and reward individual talent.
- New hires continued to receive and accept offers of salary throughout the salary range within grade at Intel and Apple and throughout job code at Adobe during the conduct period. This provides evidence of managers' freedom to assess the individual value of in-coming employees, as well as the presence of active price discovery. This analysis also shows that new hires receiving high salaries in grade did not trigger any broad shifts in base salaries in that grade.
- Salaries within grade at Intel and Apple and within job code at Adobe continued to increase during the conduct period. For about 70 percent of Class members, base salary on average rose more during the conduct period than outside the conduct period.
- Base salary outcomes for Google, Intuit, Pixar, and Lucasfilm also exhibit wide variation.⁴⁴

47. These outcomes are inconsistent with Dr. Hallock's prediction that individual employee salaries are linked through the internal compensation system and that any salary suppression for some would cause adjustments to base salary for all or nearly all Class members.

48. Each Defendant must be analyzed differently because each experienced different changes during the relevant time frame. The period of 2001 through 2011 was a time of rapid and substantial change in the technology industry. Many of these changes relate to the growth of the Internet and the ubiquity of mobile computing. These changes enabled new products such as large-scale web applications; new ways to distribute software such as online application stores; and new types of devices such as smart phones and tablets. Each of these broad industry trends affected the Defendant companies differently since each of them supplied the markets with products and services which other Defendants did not, had faced diverse business growth paths and managed workforces different in size and kind. Moreover, the 2001 through 2011 period started during the dotcom crash and the end of the period included the serious recession beginning in 2008. This combination of changes in the technological industry and macroeconomic effects means all of the Defendants face different competitive landscapes than they faced in 2001. Through this time some of the companies have grown exponentially, while others have seen more modest growth. All have entered new markets and delivered new products and services. Many have faced competitors that did not exist in 2001. These challenges are critical to understanding labor market dynamics, as employment outcomes for workers are strongly influenced by market dynamics in the underlying product or service

⁴⁴ Plaintiffs' experts' hypothetical assertions about the influence of the DNCC agreements "rippling through" the salary structure to a broad Class of technical employees outside the core Intel, Apple and Adobe employees are not as readily testable as the substantive results reported above. The remaining salary grade structures are too dynamic and complex for the same type of detailed conduct vs. non-conduct analysis reported above.

49. For reference, **Exhibit A.2** shows the number of Class employees separately for each Defendant by year at each year-end from 2001 until 2011.⁴⁵ **Exhibit A.2** also reports the number of new hires of Class employees for each Defendant by year. Of all seven Defendants, Intel employed by far the largest number of Class members, representing in some years more than 75 percent of all Class employees. Google shows the largest proportionate increase in its Class workforce among all Defendants during the 2001 through 2011 time period, growing from about 100 employees to over 11,000. Adobe, Apple and Intuit each experienced substantive increases in the number of Class members they employed between 2001 and 2011, with Adobe experiencing a particularly large increase between 2004 and 2005 with its acquisition of Macromedia. Among all Defendants, Lucasfilm and Pixar employed the fewest Class members, accounting for less than 2.5 percent of the Class in each year.

50. Intel's products have powered PCs for more than 30 years, from the first 8086 chip developed in 1978 to the modern Core architecture found in PCs today. Intel is far and away the largest employer of Class members. Intel's data specify the grade and job title of each employee from 2001 through 2011. [REDACTED]

51. In order to understand my evaluation of the actual salary outcomes for Class members at Intel in the conduct versus the non-conduct periods for these core grades, consider in detail

⁴⁷ I have evaluated individual compensation at Intel as it fits into Intel's grade structure. Intel did not have an individual job title or job code structure (as Adobe does, explained below in Section V.A.iii). Dr. Hallock has pointed to no evidence that job titles were ranked relative to each other within Intel's grades, or that the movement of one job title within a grade resulted in the movement of another job title within that same grade. To the extent that Plaintiffs contend I should review individual compensation within job titles, rather than grades, I have done that for Adobe, below in Section V.A.iii.

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52. [REDACTED]

53. [REDACTED]

54. This pattern of high variance in salary within any particular grade, as well as high variance within and across job titles within each grade, is borne out for the other core grades at Intel.⁵⁰ The highest salaried employee in any grade in any year typically earns about twice as much as the lowest salaried employee. The employee at the 95th percentile typically earns about 20 percent more than the employee at the 5th percentile, with that difference growing to about 40 percent for the grades with higher salaries. This is consistent with a system in which more experienced employees in higher salary grades have more developed human capital, knowledge and skills accumulated over time requiring more latitude for managers to make more individualized assessments of employee contributions at higher grade levels.

55. Dr. Hallock asserts that one transmission mechanism of suppressed wages is that cold called employees could enter salary grades as cross hires at the top of the grade at a new employer. He then asserts that this would create upward pressure on the salaries of others in the grade due to concerns about internal equity. He claims that this upward pressure could be

⁴⁸ [REDACTED]

⁴⁹ See Attachment 3.

⁵⁰ **Appendix A.4** reports the ranges of salary, as well as the range from the 5th to the 95th percentile for Grades 5, 6, 7, 8, 9, 10, and 11. Results for Grade 7 are duplicated in the **Appendix A.4** for ease of reference. See also Attachment 3.

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transmitted to other grades through the need to keep all grades aligned over time.⁵¹ The data do not support this view.

56. [REDACTED]

57. Plaintiffs' experts claim that the DNCC agreements suppressed compensation within a grade or job title, and that this rippled broadly to all Class members across grades and job titles. If Plaintiffs were correct, you would expect to see consistently lower growth of base salary in grades and job titles during the conduct period, as compared to before and after the conduct period. This consistent suppression across Class members was not observed across the core grades at Intel which I studied.⁵³ [REDACTED]

[REDACTED]⁵⁴ As stated above, Intel represents about 65 percent of the Class.

58. One of the Named Plaintiffs in this case was employed by Intel. Mark Fichtner was hired by Intel in July of 1993. [REDACTED]

[REDACTED] His employment with Intel then ended in November of 2006. Mr. Fichtner was re-employed by Intel

⁵¹ Dr. Hallock does not seem to consider the possibility that a cold called employee could receive an attractive offer and a large pay increase and still move into a new employer's salary structure low in the new grade due to the fact that the salary structures differ across the Defendants. He offers no mechanism by which a cross hire that arrives low in grade puts upward pressure on salary for others in the employee's new grade.

⁵² See **Appendix A.4**.

⁵³ Similar analysis is not possible for all employees at Intel. Several grades were either new during the period or contained too few employees for comparison. Others had such dramatic changes in overall population of employees, either up or down, that comparison across years within grade would not be meaningful. See **Exhibit A.3**.

⁵⁴ **Appendix A.4** reports the same analysis for the other core grades representing the vast majority of Intel employees.

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in Arizona starting in May of 2008 [REDACTED]

Mr. Fichtner separated from Intel again in June of 2011.

59. Mr. Fichtner's base salary records are shown by the green dot in the salary range boxes for Grade 7 in **Exhibit A.4**.⁵⁵ [REDACTED]

ii. Apple's Base Salary Outcomes Are Inconsistent with Plaintiffs' Alleged Ripple Effects

60. Apple was also a large employer of Class members. In 2006, for example, Apple's approximately 3,700 Class members constituted approximately 9 percent of the Class. As with Intel, at times Apple had a grade structure, i.e. employees were hired into specific jobs, those roles were assigned job titles, and those job titles were slotted into grades with defined salary ranges. However, despite having been in existence since the 1970s, Apple's demand for labor from 2001 through 2011 was highly dynamic. From 2001 through 2011 Apple transformed from primarily a computer software and hardware manufacturer to a provider of a range of consumer devices and services. Moving beyond competition on the hardware side with PC vendors such as Dell, HP, IBM, and many others and on the software side with Microsoft, Apple entered new markets. It entered the digital music player market with the introduction of the iPod in 2001 and, over time, extended the capacities of its iTunes music store, which it introduced in 2003. It also entered the mobile phone market with its 2007 introduction of the iPhone. It entered the tablet computer market with the 2010 introduction of the iPad. New products led to the need for different types of workers, as well as new sources of labor market competition.

61. These competitive dynamics are reflected in the composition and structure of Apple's technical workforce. The number of Class members employed by Apple rose from about 2,800 employees in 2001 to about 7,500 in 2011. See **Exhibit A.5**.

62. Apple also significantly changed its base salary structure between 2004 and 2005, streamlining its job levels and overall structure.⁵⁶ It created grades within each level to indicate salary ranges across job titles and levels. Jobs were assigned to job grades that mapped into salary ranges, coupled with four regional breakdowns: Top Markets, Major Markets, National Markets, and Small Markets. Apple's stated philosophy was to compensate its employees based on their individual contributions to the company and differences in their job scope, responsibilities and experience. Managers were made responsible for recommending specific compensation awards to their employees based on their individual characteristics.⁵⁷ These changes are apparent in **Exhibit A.5**, as the grade structure in place in 2004 is wholesale replaced by 2005. Individual job titles also underwent significant modifications at this time.

⁵⁵ Mr. Fichtner's base salary records for Grade 8 can be seen in **Appendix A.4**.

⁵⁶ Burmeister Declaration, ¶ 10.

⁵⁷ Burmeister Decl. ¶ 7; Burmeister Dep. 46:8-14, 47:13-19, 48:19-23, 53:23-54:1, 137:23-138:12, 165:25-166:5.

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These changes suggest a salary setting philosophy that is highly focused on individuals and their contributions to Apple, rather than the highly formalized and inflexible structure implied by Dr. Hallock.

63. As a result of the substantive changes in structure at Apple between 2004 and 2005, it would be inappropriate to test Plaintiffs' experts' assertions about the effect of the DNCC agreements by referencing the pre-conduct period. There also is no reason to believe that any effects of the flow of information into the grade structure at Apple prior to the restructuring would have the persistent ripple effects discussed by Dr. Hallock and Dr. Leamer. Even within the 2005 to 2011 time period, evaluation of changes in base salary over time by grade are potentially problematic, as the size of Apple's Class workforce more than doubled. Times series evaluation of outcomes within grade when the grade is growing extremely rapidly could potentially conflate effects on base salary due to the changing constitution of the employees within each grade with DNCC effects. Therefore, any analysis of employee salary over time within grade under these circumstances should be approached with an understanding of its limitations.

64. With these caveats in mind, it is still informative to reference the actual data on salary outcomes for Apple after the restructuring between 2004 and 2005 to shed light on Dr. Hallock and Dr. Manning's abstract assertions about broad propagation of salary suppression. I evaluated in detail the grades that contained the vast majority of employees at Apple from 2005 through 2011, i.e. Grades [REDACTED]. In 2006, these grades contain 2,736 Class employees. Added to the 26,070 Class members from the core Intel grades, the total is about 28,806, or 70 percent of the Class in that year.

65. My empirical evaluation for these grades at Apple during this time frame shows results similar to those for Intel. The variance of salary within grade remained extremely high within the conduct period and after. There is no evidence of suppression of starting salary for new hires during the conduct period relative to the following years. The mean base salary within grade rose for employees in most years during the conduct period. For Apple, consider the detailed outcomes for employees in Grade [REDACTED] the grade that contains the largest number of employees during the period. This grade contains between about 700 and 2,300 employees throughout the 2005 and 2011 period.

66. As at Intel, the variance of salary within Grade [REDACTED] at Apple, year-by-year, was consistently large, indicating that within the grade, employees could be rewarded according to highly individual attributes assessed by each employee's managers. As reported in **Exhibit A.6**, for example, [REDACTED]

[REDACTED] In other words, the highest paid employee earned over [REDACTED] more than the lowest, within the same grade. This pattern of variance is evident within the job titles within the grade, as well.⁵⁸ The job title with the most employees in Grade [REDACTED] is [REDACTED], with [REDACTED] employees. [REDACTED]

Meanwhile, there are other job titles assigned to this grade for which the minimum observed

⁵⁸ See Attachment 3.

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salary in the title exceeds the maximum salary for this large group. For example, [REDACTED]

Differentiated job titles exist within the salary structure at Apple.

67. Even after eliminating the highest and the lowest of the range of base salary, and only considering individual salaries from the 5th to the 95th percentile, the variance remains high. For example, for [REDACTED]

Note that some of these outcomes fall outside the range of salary for this Grade reported by Dr. Hallock in his Figure 6. Despite considerations for internal equity, managers making compensation decisions clearly have scope to support base salary recommendations across a wide range of pay.

68. This pattern of high variance in salary within any particular grade is borne out for the other core grades at Apple.⁵⁹ [REDACTED]

69. Similar to Intel, starting salaries of new hires within each grade at Apple were highly dispersed throughout the conduct period, with plenty of new employees entering the grades above the midpoint. To the extent Dr. Hallock asserts “top of the box” entry into a grade creates upward pressure on the pay of others in the grade, and ultimately on the grade structure itself, this pressure would have been exerted even in the presence of the DNCC agreements. For example [REDACTED]

[REDACTED] This pattern is present in each of the other core salary grades at Apple. Significantly, there is no observable broad shift in the structure as a result of individuals entering high in grade.

70. As with Intel, I find that Apple’s actual salary outcomes increased during the conduct period. The mean salary in [REDACTED] increased every year during the period, including during the conduct period and the post-conduct period. See **Exhibit A.6**. This pattern of consistent growth in salary throughout the conduct period is confirmed across the other core grades at Apple, including during the years of macroeconomic recession.⁶¹

iii. Adobe’s Base Salary Outcomes Are Inconsistent with Plaintiffs’ Alleged Ripple Effects

71. Adobe constituted approximately five percent of the Class. Unlike, Intel and Apple, Adobe had a pay structure that did not comport with Dr. Hallock’s descriptions of grade structure. At Adobe, each job title is assigned a job code and each job code is assigned a broad salary

⁵⁹ **Appendix A.6.** reports the ranges of salary, as well as the range from the 5th to the 95th percentile for Grades [REDACTED]

⁶⁰ See **Appendix A.6.**

⁶¹ See **Appendix A.6.**

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range; jobs are not aggregated into grades. However, the structure is even more complex than having one salary range for each job code. My review of data on salary ranges for Adobe shows that on average there are 481 job codes each year, that each job code can be associated with more than one job title, and that many of these job codes are associated with multiple salary ranges. For example, in 2011, job code 3001078 (Computer Scientist, Sw Dev 4) has seven different salary ranges associated with it. **Exhibit A.7** shows details for the salary ranges for this job code and examples of other selected job codes with multiple salary ranges in a particular year.

72. [REDACTED]

[REDACTED] **Exhibit A.8** shows a complete list of all job codes that have employees assigned to them during the 2001 to 2011 period. In addition, **Exhibit A.9** shows the distribution of the number of employees within each job code for 2005.⁶² [REDACTED]

73. [REDACTED], it is possible to evaluate the salary outcomes within a particular job code. [REDACTED]

[REDACTED] I have chosen to conduct an evaluation of four particular job codes. [REDACTED]

[REDACTED]. The first three job codes are the only job codes that consistently have more than 100 people in them during the entire time period; the fourth job code was chosen because one of the named Plaintiffs, Brandon Marshall, was assigned to it during his short tenure at Adobe. I evaluated in detail the salary outcomes for employees in these four job codes at Adobe. Consistent with my review of Intel and Apple, the job code structure at Adobe shows that: 1) the variance of salary within job code remained extremely high within and outside the conduct period; 2) new hires continued to receive and accept offers of salary throughout the range within job code during the conduct period; and 3) salaries within job code continued to rise during the conduct period.

74. To understand my evaluation of salary outcomes for Class members at Adobe, consider job code [REDACTED] shown in **Exhibit A.10**. Salaries were highly varied both during and outside of the conduct period. Take 2007 as an example. The lowest paid employee in this job code earned about [REDACTED], while the highest paid employee earned approximately [REDACTED]

75. [REDACTED]

⁶² This pattern is persistent throughout the period. See **Appendix A.9**.

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[REDACTED]

76. The pattern of new hire salaries at Adobe is also consistent with Intel and Apple, i.e., new hires at Adobe were paid starting salaries throughout the range within job code during the conduct period. [REDACTED]

[REDACTED] These results are consistent with the notion that managers evaluate these candidates' individual attributes and offer salaries that reflect them.

77. Finally, as shown in **Exhibit A.10**, the mean salary of the employees in this job code increased during the conduct period relative to the pre-conduct period. In fact, the mean salary increased more during the conduct period. This pattern holds for the other main job codes at Adobe.⁶⁵

78. Two of the Named Plaintiffs in this case were employed by Adobe. Michael Devine was hired by Adobe in [REDACTED]. **Exhibit A.10** shows base salary data for Mr. Devine in 2006 and 2007. His records are shown by the green dot in the salary range boxes for 2006 and 2007. Mr. Devine starting salary at Adobe was [REDACTED]. In 2007, he was paid essentially [REDACTED].

79. Brandon Marshall, had a very short tenure at Adobe. He started his employment as a [REDACTED]. **Exhibit A.11** shows base salary data for Mr. Marshall in 2006. He was paid [REDACTED].

80. The base salaries within grade at Intel and Apple and within job code at Adobe continued to increase during the conduct period. For the salary grades and job codes I analyzed above, which account for at least 70 percent of Class members, I show in **Exhibit A.12** the weighted average of base salary across time. [REDACTED]

⁶³ Salary variances are even larger in 2005 and 2009, likely due to two large acquisitions by Adobe, Macromedia in 2005 and Omniture in 2009.

⁶⁴ **Appendix A.10** reports the ranges of salaries for job codes [REDACTED]. Results for job code [REDACTED] are duplicated in the Appendix for ease of reference.

⁶⁵ See **Appendix A.10**.

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[REDACTED]. In fact it increased at a faster pace during the conduct period than outside the conduct period which is a clear indication of no suppression in base salaries due to the alleged DNCC agreements for a significant majority of the Class.

iv. Google's Salary Outcomes Are Inconsistent with Plaintiffs' Alleged Ripple Effects

81. While Apple and Intel were both founded in the early days of the personal computer revolution, Google was incorporated in 1998. Google's first and most well-known product was Internet search. Google's growth has been exponential as it has leveraged its successful search engine into advertising revenues: its revenues have grown from \$86 million in 2001 to \$37.9 billion in 2011. During this time of substantial revenue growth, Google completed its IPO in August 2004. Google has developed new products and services making use of its massive web infrastructure in order to address increasingly networked consumers and businesses. Google has also been active in acquisitions, buying companies that specialize in online video (YouTube) and advertising (DoubleClick). Google's broad online presence and product focus have led to competition in a variety of product spaces. In web search, Yahoo and Microsoft maintain widely used search engines. Google is increasingly competing with Microsoft in delivering web applications to businesses and consumers. Google also competes against companies that did not exist in 2001. The growth of Facebook has spawned movies and books, but it also saw the development of Google's social network and competition for talented programmers. Finally, Google's product focus has widened into mobile devices including the introduction of the Android, a mobile operating system that could be used by numerous device manufacturers. With this rapid pace of innovative and change in the products and services provided, Google needed both a rapid ramp-up in the size of its workforce and a workforce with increasingly diverse employee skills.

82. The highly dynamic nature of Google's workforce is apparent from a number of perspectives. Google's technical workforce grew incredibly rapidly from 2001 through 2011. As shown in **Exhibit A.13**, Google grew from just 101 Class employees in 2001 to over 11,000 by 2011. Google grew so rapidly that new salary grades were created to accommodate the rapid growth in new employees. There were only [REDACTED] salary grades for Class members in 2001 and [REDACTED] by 2011.

83. Even within grade, the incumbent population varies radically year over year. [REDACTED]

[REDACTED] See **Exhibit A.14**. Not only did the grade grow in size, but the job functions of employees within the grade were highly dynamic. [REDACTED]

[REDACTED] See **Exhibit A.15**.

84. Not only was Google's workforce highly dynamic over the past decade, but its compensation structure was evolving as well. For the salary grades comprising the largest

⁶⁶ A similar pattern is apparent in other T grades. See **Appendix A.16**.

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number of employees i.e. [REDACTED]

See **Exhibit A.16**.

85. For these reasons, a meaningful comparison of conduct to non-conduct salaries should not be made. Comparison of the minimum, mean and maximum salaries for such widely divergent employee populations within grade would not provide reliable insight into Dr. Hallock's assertions about potential impact of formal salary structures and concerns regarding internal equity. In any given year, the incumbent employees represent a totally different pool of employees relative to the year before.

86. The fact that Google grew as rapidly as described above also renders implausible the argument that there was an absence of price discovery. In [REDACTED] (shown in **Exhibit A.17**), for example, [REDACTED]. Although one might argue that the salaries of these new employees to the grade were depressed as a result of overall market suppression of salaries, this assertion is refuted by two facts. First, as I show below in my discussion of the overall labor market for technically skilled workers, there is no evidence of market suppression overall. Second, the fact that Google was able to expand its workforce so rapidly belies any claim that it was paying below-market compensation.

87. Putting aside the dynamic nature of Google's workforce, the actual salary outcomes for Class members employed by Google are widely divergent. These salary outcomes indicate the individualized nature of base salaries at Google. Recall the comparison of the T grades structure to the actual salary outcomes for 2004 shown in **Exhibit A.1**.

v. *Intuit's Base Salary Outcomes Are Inconsistent With Plaintiffs' Alleged Ripple Effects*

88. The rise of large-scale networks and mobile computing was a competitive force for Intuit, a company which is known for its personal financial software Quicken and TurboTax and its small business focused accounting software called QuickBooks. As online access grew, new forms of competition arose in the personal finance space. Aggregation of financial transactions could now be provided through a web site rather than requiring manual entry or download into Quicken. Intuit directly entered this space with its acquisition of Digital Insight Corporation, a leading provider of on-line banking services, as well as other online service providers. Tax products, too, could be delivered online with a lower distribution cost and an increasingly sophisticated user interface and capabilities. These products, however, require different technologies and different modes of deployment than traditional software which was distributed to users in boxes and CDs via retail or online stores. Like the broader industry trends toward web-based applications, Intuit entered new markets and thus faced new competitive pressures and shifting demand for labor.

⁶⁷ Results for the other T grades show an even stronger shift into equity in the higher salary grades, See **Appendix A.14**

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89. Intuit continued to grow throughout the period, [REDACTED]

[REDACTED] With this inflow of new employees from non-Defendant firms and acquisitions, there would have been many employees at Intuit with readily available recent labor market information regarding compensation outside the company. Intuit characterized itself as a pay-for-performance company, [REDACTED]

[REDACTED] See **Exhibit A.18**. Intuit did not have formal salary ranges, but rather paid many of its employees relative to external benchmarks and individual internal assessments of value within the company.

[REDACTED] For example, in 2007 there were [REDACTED]

vi. Pixar's Salary Outcomes Are Inconsistent with Plaintiffs' Alleged Ripple Effects

90. Pixar focused on supplying the market for entertainment, in contrast with other Defendant companies, which generally supply the technology and the associated services markets. Pixar's main business for over 25 years has been the creation and distribution of animated features and short films. The company is also known for its RenderMan software which is used in the creation of computer animated images. Before being a stand-alone company in 1986, Pixar was part of Lucasfilm as a separate division. The company was bought by The Walt Disney Company in 2006. During the past decade almost all of Pixar's Class employees were located in Emeryville, California.

91. According to Dr. Hallock's own description, the salary structure at Pixar was different from most other Defendants in that it did not rely on salary grades but instead on job titles only. Dr. Hallock infers that the job titles structure Pixar had in place was similar to salary grades based on the fact that some job titles were ranked and based on "Engineering Job Matrix." This matrix listed six levels, for "knowledge," "job complexity," "supervision & collaboration" and "experience."⁶⁸ He then generalizes that Pixar had a formalized salary structure that could lead to wide ripple effects because there were many job titles, each title having a base salary range and the ranges were benchmarked to the external survey data. Dr. Hallock relies on salary grades description as the basis for his assertions regarding the alleged ripple effects, even while admitting Pixar did not have grades. Instead, Pixar had numerous job titles. In 2007 alone, of the 101 job titles, 61 titles had a single Class member.⁶⁹

92. More importantly, in the job titles with many employees, the base salaries varied widely from one employee to another. Take the most common job title among the Class members at Pixar - "Technical Director." In 2007 Pixar employed 155 Class members with this job title. The minimum base salary among these employees in 2007 was [REDACTED] the maximum was [REDACTED].

⁶⁸ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶17.

⁶⁹ See **Attachment 3**.

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That is a range of over 350 percent. The next most populous job title is “Animator.” The minimum base salary in this job title in 2007 was [REDACTED], while the maximum was [REDACTED] for a range of over 135 percent. According to Dr. Hallock, an increase to the “Technical Director” earning \$186,701 would have led to an increase to all or nearly all other 154 “Technical Directors,” including some earning as little as \$40,040. This would also have led to an increase in the base salaries of all or nearly all 68 “Animators.”⁷⁰

93. Also consider the extremely high variation in Pixar’s Class members’ mean base salaries. In 2007 for example, the minimum base salary among all Class members at Pixar was under \$50,000 while the maximum exceeded \$375,000. The base salary range between the 5th percentile and the 95 percentile extended from approximately \$70,000 to \$170,000. New hires were offered starting salaries over a considerable part of that range, the lowest base salary for a new hire was less than \$50,000 while the highest was around \$140,000. This wide variation in base salaries was not limited to 2007 only. It can be observed in all other years too. Such large variation in base salaries across many job titles in the absence of a salary grade structure is inconsistent with Dr. Hallock’s conclusion that Pixar had a formal pay system through which the alleged suppression could propagate.

94. The variation over time in the proportion of total annual compensation earned by Class members at Pixar as bonuses and equity grants shows that base salaries were not fixed relative to total compensation as Dr. Hallock implies. In **Exhibit A.19** I show the proportion of base salary, bonus and equity grants in total compensation for each year from 2001 through 2011. Equity share ranged from more than 35 percent to effectively no equity grants being awarded in 2010 and 2011. Bonus share also varied from as little as few percent to more than 15 percent of annual total compensation. Clearly Dr. Hallock’s assertion that the alleged ripple would have extended to bonuses and equity grants at Pixar is unfounded.

vii. Lucasfilm’s Salary Outcomes Are Inconsistent with Plaintiffs’ Alleged Ripple Effects

95. Similar to Pixar and unlike other Defendants, Lucasfilm’s focus is on the market for entertainment. For more than 30 years the company has been a producer and distributor of films and television programs. It also offers sound and visual effects services as well as animation products and services. In 2012 Lucasfilm was bought by The Walt Disney Company.

96. The company is different from all other Defendants in that it never granted its employees equity because it was a privately held company. **Exhibit A.20** indicates the proportions of total annual compensation it paid its Class employees as base salaries and bonuses. Bonus share fluctuated from year to year between about 5 percent in 2005 and 2009 to almost 15 percent in 2003. Only after 2005, Lucasfilm had formal salary grades. Even after that structure was in place, many job titles moved from one grade to another. Lucasfilm also did not maintain the relative salary grade ordering of all job titles over time indicating a detachment between job titles and the associated salaries.⁷¹

⁷⁰ See **Attachment 3**.

⁷¹ See LUCAS00221117.

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97. There is also evidence that at Lucasfilm, the job titles were unlikely to transmit the alleged ripple effects asserted by Dr. Hallock. In 2007, of the 103 job titles, 56 titles had only one Class member. Dr. Hallock cannot explain how an increase to any of these 56 employees, each performing different jobs, absent a stable salary grade system could lead to increases to the other 55. In the same year, among the 37 Class members in the largest job title - "Software Engineer," the minimum salary was [REDACTED].⁷² This is a rather wide range, which makes it implausible that an increase for one will lead to increases for all in this group.

98. Dr. Hallock chose 2006 to 2008 Lucasfilm data to purportedly show that its entire salary structure moved all at once.⁷³ However, he obscures the point that there was a 10 percent increase during the conduct period over just a two year period 2006 to 2008. This is the highest increase that I see at any Defendant.

99. In sum, the abstract and overly generalized claims of Dr. Hallock and Dr. Manning that Defendants' salary structures along with the concept of internal equity are viable propagation mechanisms is not borne out by the testimony, documents or the actual salary outcomes for a significant majority of the Class members. Taken together, the significant variation in the salary data, Defendants' compensation philosophies, and its implementation through individual managerial assessment of talent and performance, are all at odds with a compensation structure in which changes in compensation for some employees necessitates changes in compensation for all or nearly all Class members.

B. *Bonus and Equity Compensation: Pay for Performance and Retention-Oriented Compensation Are Not Fixed Relative to Base Salary and Vary Highly Across Employees, Time and Defendants.*

100. Dr. Hallock focuses his report on base salary structure, but he briefly states "there is substantial evidence in general that stock ... as a fraction of total compensation is correlated with job level and salary."⁷⁴ He made no effort to study bonus or equity at even one Defendant firm. Instead, he refers to his own research on CEO compensation at other companies, which is not relevant to the practices at the companies at issue here or the types of jobs held by Class members. He also plots the relationships between Apple's guidelines for a single year suggesting larger bonuses or equity grants are awarded to those in grades with higher base salaries. However, these are merely guidelines for one Defendant for a single year and do not provide evidence of actual compensation outcomes.

101. As a threshold matter, Dr. Hallock did not study the policies and practices governing how bonuses or equity is used at each defendant firm. They vary widely within firm and across firms, and changed over time. For example, Adobe's Total Rewards program provided numerous non-base compensation components, including [REDACTED]

⁷² See **Attachment 3**.

⁷³ Expert Witness Report of Kevin F. Hallock, October 27, 2013, Figure 12, ¶ 194.

⁷⁴ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 31.

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[REDACTED]

102. The data directly contradict any suggestion that bonuses, stock, stock options, RSUs and other forms of equity grants (collectively, “equity grants”, “equity awards” or “stock and option grants”) are awarded according to the underlying salary structure. As described above in Sections V.A, for about 70 percent of Class members, base salaries on average grew more during the conduct period than outside the conduct period. However, year over year, growth rates were modest i.e. 4.5 percent during the alleged conduct period and 3.5 percent outside the period. Contrary to that pattern, performance bonuses and equity awards varied highly across Defendants, varied highly over time for any given Defendant and varied highly among employees of any particular Defendant.

103. Incentive pay can reward work performed in the past, encourage employee’s efforts in the future or increase the likelihood of that employee’s continuous employment with the company. Bonuses and equity awards can perform all of these functions. Bonuses are more likely to reward past performance because they are generally linked to the employee’s previous year’s performance. They provide incentives to employees to keep up the good work and shows that the company appreciates their efforts. On the other hand, equity grants are tied to the company’s view of the employee’s future contribution and future stream of revenues. These characteristics of equity grants make them particularly well suited for rewarding future performance and serve as effective retention tools of employees with distinctive attributes.

104. As the documents and testimony show, the retention of certain employees takes priority over the retention of others, because their departure can have a more significant effect on the overall competitiveness of a company. This can happen for many reasons, including that these employees possess knowledge that have been developed in cooperation with other employees, because they have skills that are in high demand within the firm or because of the synergistic nature of their working relationships within the firm or with companies that the company collaborates with (e.g., an engineer that works on a joint project). Because these employees have a profound impact on a firm’s overall success, more resources will be spent to retain these employees relative to the employees who can be more easily replaced. Thus each employee’s particular employment circumstances will determine the nature of the retention package she or he receives.

105. Plaintiffs’ experts have suggested the DNCC agreements may have had the effect of reducing the Defendants’ need to rely on retention-oriented compensation, such as retention bonuses and equity awards.⁷⁵ Evaluation of the actual data shows that retention-oriented compensation continued to be a critical aspect of the Defendants’ reward systems throughout the conduct period. Retention-oriented compensation had the intended effect of reducing attrition. Employees that received stock awards had lower turnover.

⁷⁵ Streeter Deposition, 48:23-49:4, 49:21-50:16, 51:4-5, 52:19-23, 124:13-18, 123:4-9, 126:13-25.

⁷⁶ Expert Report of Edward E. Leamer, Ph.D., January 17, 2013, ¶¶ 98.

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106. Equity awards are particularly well suited as tools for retaining employees because there is an intrinsic alignment between the interests of the firm and the employee. Equity awards may appreciate over time or vest in the future, inducing employees to continue their tenure with the firm. Also, future cash value of the awarded stocks and options may depend in part on employees' own performance.

107. To test the degree to which restricted equity awards affect the likelihood of retention at the four remaining Defendants, I calculate and show in **Exhibit B.1** the separation rates for employees who have received some equity awards and for those who have received none. For example, in 2004 approximately 15 percent of the employees who received no stock or option awards have left their employer by the end of next year. By contrast only 6.3 percent of those who received some stock or option awards left the company. The same pattern holds in all 10 years for which I carried this comparison. I also tested whether the separation rates between the two categories of employees are statistically different. **Exhibit B.2** shows that in each year from 2001 through 2010, the separation rates among the employees who received some form of equity award are significantly different from the separation rates of those who did not receive any.

108. Consider the significant variation in equity awards from one employee to another at each Defendant in 2007.⁷⁷ **Exhibit B.3** shows the individual employees' ratio of equity awards relative to their base salaries for the six Defendants that made awards in that year. The height of each bar indicates the percent of Defendant's Class members receiving equity grants at a given ratio of their base salary out of all employees who received any equity grants. In 2007 alone, high levels of variation are evident among the employees of each of the six Defendants.⁷⁸

109. The value of equity awards varied among Class members over time as well. In the case of Apple, as it was increasingly relying on such awards between 2001 and 2011, the dispersion among its employees has increased. In 2005

By 2008,

110. The same pattern of high dispersion in equity grants holds for the rest of the Defendants.⁸⁰ At Adobe for example, which relied on equity awards to a lesser extent than other Defendants, the range of these awards (among employees who received any at all) ⁸¹ This is true before, during and after the alleged conspiracy took place. Clearly, Defendants continued to rely on equity grants as a tool to

⁷⁷ Except Lucasfilm, which did not offer equity to their employees.

⁷⁸ See **Appendix B.3** for distributions for all Defendants except Lucasfilm for all years. These graphs are sorted by Defendant and year.

⁷⁹ See **Appendix B.3**.

⁸⁰ See **Appendix B.3**.

⁸¹ See **Appendix B.3**.

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retain and reward their employees, they also continued, and in some cases emphasized the individualized approach in making these grants.

111. The named Plaintiffs themselves show important variation in the ratio of equity grants to their base salaries. In 2006 alone, Brandon Marshall and Michael Devine, both former Adobe employees, earned grants of approximately [REDACTED] respectively. For Marshall this translated into at a ratio of grants to base salary of about [REDACTED] while for Devine to approximately [REDACTED]

[REDACTED] At Intuit Daniel Stover's grants varied across his three-year tenure from [REDACTED]

[REDACTED] Stover on the other hand received both stock and options as part of all of his grants. [REDACTED]

112. [REDACTED] other Defendants have generally experienced an increase in this trend. **Exhibit B.4** shows the proportion of each Defendant's Class members which was awarded some stock or options. [REDACTED]

From 2004 through 2008 Pixar experienced a rapid growth in the proportion of its Class members receiving some stock or option grants, after which it has decreased to less than 5 percent in 2010.

113. The structure of base salary, bonus and stock awards changed dramatically throughout the period – particularly for higher grades. This is a telling fact. Any significant move in the relative structure of total compensation implies that the relative increase in one part leads to a relative decrease in at least one of the other parts, which is inconsistent with Dr. Hallock's assertions that base salary, bonuses and equity awards are and remain highly correlated. For example, [REDACTED]

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114. Apple, by comparison, had a generally strong trend towards increased reliance on equity awards throughout the period from 2005 until 2011 across the five heavily populated grades that I discussed above. It can be seen from Exhibit B.6 that in grade [REDACTED]. In other grades this ratio has increased significantly as well. This is largely attributable to a rapid increase in stock price rather than a large increase in the number of awards. In 2005 the average number of restricted stock shares awarded by Apple to its employees was [REDACTED] per employee. As the company's workforce grew, by 2011 this number [REDACTED] stock shares per employee. Between 2005 and 2011, company's stock price has increased almost five fold.

115. At Google, the mix of base salary, performance bonuses and equity awards [REDACTED]. Recall Exhibit A.16 which shows for salary grade T4 the relative magnitude of base salary, bonuses, and equity awards relative to the total compensation. [REDACTED]. The so-called "Big Bang" in 2011 is further evidence that the bonuses and equity awards are not determined in a fixed relationship to the base salary. In fact, it suggests exactly the opposite. The "Big Bang" is evidence that the three components of total compensation may be adapted in changing conditions and are not structurally fixed across grades or time.

116. The named Plaintiffs show varying compensation mixes when compared to each other and when observed over time. For the year that Brandon Marshall has worked at Adobe, his total compensation mix was split [REDACTED]. Daniel Stover's compensation mix has changed substantially over time. The share of his base salary varied from about 81 percent in 2007 to 52 percent in 2008. Meantime the share of equity grants varied [REDACTED]. In his two years at Adobe, Michael Devine's share of total annual compensation earned through base salary was approximately [REDACTED] bonuses accounted for up to [REDACTED] and his equity grants accounted for [REDACTED]. Siddharth Hariharan's total compensation in 2007, his only year with Lucasfilm, was composed of 83 percent base salary and 17 percent bonus. There were no equity awards at Lucasfilm.

117. Finally, Dr. Hallock suggests that the notion of pay for performance is already imbedded in the grade structure he described and, as such, along with the grade itself should account for all

⁸³ For all the other grades at Apple besides Grade [REDACTED] see Appendix B.6.

⁸⁴ For all the other grades at Google besides Grade T4, see Appendix A.16.

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variation in total compensation including stock and option grants. This assertion is contradicted by the data. [REDACTED]

118. [REDACTED]

C. *Defendants Rewarded Some Employees Without Necessarily Adjusting Pay For All or Nearly All Class Members*

119. To further illustrate the individualized nature of equity awards and their importance in retaining certain groups of employees, I identify and study groups of employees with large equity grants along with their comparator peers at four Defendants - Adobe, Apple, Google and Intel. I will refer to these employees with large equity grants as “uniquely rewarded Class members.”⁸⁶ My analysis of these employees shows that the data are inconsistent with their equity compensation propagating broadly to other employees.⁸⁷

⁸⁵ Examples of potential additional factors impacting pay are the project an individual is working on, previous employment experience, the judgment of the manager making the compensation assessment, etc.

⁸⁶ Google in particular had in place a program called “Google Forever” [REDACTED]

[REDACTED] GOOGLE-HIGH-TECH-00519081-91 (pp. 1-2).

⁸⁷ Without knowing the specific facts about each individual employee, one cannot identify the individuals a firm, or a manager, believed were critical to certain projects at any given time or were star performers.

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120. Each of these companies paid its employees across time in vastly different ways depending, among other things, on the market conditions, company performance etc. [REDACTED]

[REDACTED] The absolute amounts of base salaries and stock and option grants varied among the Defendants as well. In **Exhibit C.1** I show the average amount of equity grants in each year at each Defendant. [REDACTED]

[REDACTED] Apple has also experienced an increase the average amount of awarded equity from [REDACTED]

[REDACTED] For Apple employees I set the thresholds at [REDACTED] and [REDACTED] percent respectively. For Google employees the thresholds are set at [REDACTED] percent respectively. [REDACTED]

[REDACTED] Using the employment characteristics of the identified uniquely rewarded employees, like department, job title and pay grade, I identified narrow groups of similarly situated comparator employees to determine whether they too were awarded retention packages and if yes, to what extent.

121. **Exhibit C.2** shows the annual values of equity grants for both the uniquely rewarded Class members and the similarly situated employees in these four groups. At Adobe, I show all employees in the [REDACTED]

[REDACTED] At Apple I show all employees at the Santa Clara Valley location working in the “Industrial Design” department who were in the R&D job family and identified as Engineers in their job titles. The Google exhibit shows the value of equity awards for employees working at the Mountain View location with the job title “Staff Software Engineer” and pay grade “T6.” Finally, the Intel exhibit shows the same for the employees at its Santa Clara location in the “Digital Enterprise Group” department with job title “Component_Design_Engr_8.” The employees in each of these groups had similar employment characteristics relative to each other. They worked in the same environment with similar responsibilities and most likely on the same or similar products.

122. What I find, however, is that among the individuals in each of these groups, some employees are granted significant amounts of equity while others are not. Also, there is a great amount of variation from one employee to another depending the factors that are idiosyncratic to each employee without any evidence that the awards of equity would ripple from the uniquely rewarded employees to the rest of the employees within such narrowly defined groups of comparable employees. Moreover, for any given uniquely rewarded employee there was no guarantee that grants were made in each year, nor is there consistency regarding the size of the

⁸⁸ Many Defendants at one time or another shifted between the use of stock options, to a mix of stock options and RSUs or to RSUs only.

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awards year-after-year. This is consistent with the retention nature of these grants and ever changing individual circumstances each employee faces depending the current projects she works on, market conditions, firm standing etc.⁸⁹

123. The individualized nature of equity grants can be further observed in **Exhibit C.3** which show the ratio of such grants to Google employees in 2008 at the Mountain View location with the job title “Staff Software Engineer” and pay grade “T6” relative to their base salaries. In that year, which allegedly is within the conduct period, [REDACTED]

124. Significant dispersion of equity awards can also be seen among Apple individual contributors in the [REDACTED] Job Family who were identified as Engineers in their job titles. **Exhibit C.4** shows that while [REDACTED]

125. [REDACTED]

VI. Dr. Hallock’s Top of the Box Concept is Unfounded

126. Dr. Hallock describes his concept of “top of the box” as support for propagation of alleged wage suppression. According to Dr. Hallock, salary range guidelines used by

⁸⁹ Indeed, Dr. Hallock admitted during deposition that equity grants do not necessarily propagate to other employees. Hallock Deposition, November 11, 2013, 548:16-549:5.

⁹⁰ The dispersion among the same group of employees grew even larger in 2009 when most employees received packages valued at between 60 and 240 percent with a significant number of them granted as much as two to four times their base salaries. This can be seen in **Appendix C.3**.

⁹¹ See **Appendix C.4** for all other years.

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Defendants constitute “boxes.”⁹² If the top of the box, or the top of the salary range guidelines are “lowered in the presence of cold-calling restrictions, the entire box may be as well.”⁹³ Put another way, “if the pay is restricted for any of the kinds of people who may be at the ‘top’ of the boxes, then the boxes may stop growing from period to period and all employees – even those not at the top of the box can be affected.”⁹⁴ Dr. Hallock seems to argue that in the absence of the DNCC agreements, employees at the top of the salary ranges may have received cold calls, which may lead to increased compensation for those individuals, which may then cause the salary range (or the “box”) to increase.

127. In my almost 20 years of experience, I have never seen an employer move a salary range or salary grade in response to the presence of highly paid employees within the “box.” Nor does the evidence in this case support Dr. Hallock’s concept.

128. First, salary ranges are built based on market data and are not dependent on the salary of the highest paid individuals.⁹⁵ As addressed below, the use of market data is not a propagation mechanism. Thus, Defendants do not move or increase the top of a salary range because individuals’ salaries are high or outside of the range.

129. Second, Dr. Hallock’s idea is based on the assumption that Defendants required fixed ratios between employees to be maintained so that the movement of one person resulted in the movement of others. There is no evidence of this, and the analyses above shows the evidence is contrary to the maintenance of fixed compensation between employees.

130. Third, Dr. Hallock completely ignores the fact that employees can move from one job to another; one grade to another; one level to another. Even if Dr. Hallock were correct about highly paid individuals causing the salary ranges to move, employers can simply move an employee into the next range or grade, without any impact on the structure. Along the same lines, employers can also simply give an employee a one-time bonus or equity grant as a retention tool, which would have no impact on the salary ranges or boxes.

⁹² Hallock Deposition, November 11, 2013, 537:21-538:15.

⁹³ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 232.

⁹⁴ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 222.

⁹⁵ Otellini Deposition, 252:3-4 (Intel “establish[es] the ranges based upon our view of the market...”); Streeter Deposition, 265:25-266:12 (Adobe creates salary ranges based on spread that corresponded to the 65th percentile of the market for each job); Wagner Declaration, ¶¶ 7-8 (Google builds salary ranges through market surveys, encompassing hundreds of companies); Burmeister Declaration, ¶ 4 (“[redacted] Sheehy Deposition, 89:9-16 (Pixar uses the [redacted] percentile of the market data as the minimum and the [redacted] percentile of the market data as the maximum of salary ranges); Maupin Deposition, 148:25-149:12 (Lucasfilm matches job descriptions to relevant market survey data and then assigns a job to a pay range that aligns with the [redacted] percentile of the relevant market data for that job).

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131. Fourth, salary ranges are guidelines given to managers to help managers make individual compensation assessments. Managers are not required to pay within ranges, and the movement of salary ranges does not cause individual compensation to increase.⁹⁶

VII. There Were Many Channels For Price Discovery

132. Dr. Manning contends that the DNCC agreements “generally reduced job opportunities and the information available about labor market conditions . . . thereby generally suppressing wages.”⁹⁷ Dr. Manning admits that “[i]t is important to consider how much of a reduction in information and job opportunities were caused by the conspiracy.”⁹⁸ However, Dr. Manning does not assess the amount of reduction. The evidence I find in the data shows that the amount of any suppressed information that would have affected price discovery is immaterial. The number of hires between the Defendants is an appropriate gauge for the amount of recruiting between these firms. **Exhibit D.1** shows that, in any given year, the proportion of cross-hires relative to all hires was no more than [REDACTED]. This was true before, during and after the alleged agreements took place. The low number of cross-defendant hires provides insight into the amount of potential recruiting activity between defendants, as compared with the amount of potential recruiting activity from other sources. More than [REDACTED] of recruiting was unaffected by the DNCC agreements.

133. Plaintiffs’ experts argue that there is an absence of price discovery about employee value during the conduct period due to impeded cold calling leading to pay suppression for all employees. They contend that the suppression will occur even if only a small number of employees did not receive as many cold calls as they otherwise would have received. First, they assume without support that the information to one employee who received the cold call is available and applicable to many other employees within the company. This is because information has been conveyed specifically to the cold called employee subject to a particular set of employee attributes, which other employees may lack. Moreover, many employees within the company do not necessarily participate in the kind of information exchanges that the Plaintiffs’ experts assert. Of those employees who may participate in this information exchange, many will not convey that information any further to other employees. Finally, Plaintiffs’ experts provided no substantiation for their assumption that cold calling as information channel is any different from the multitude of parallel channels through which similar information is being exchanged. Whatever the mechanism of information propagation the Plaintiffs’ experts choose to describe,

⁹⁶ Arriada-Keiper Deposition, 23:24-25 (for Adobe, “Q: if the ranges go up do salaries increase? A: No.”); *id.* at 24:4-22 (“it becomes manager’s discretion” on whether to raise a sub-minimum salary up to the minimum in the range); Burmeister Deposition, 55:13-19 (for Apple, “salary ranges are reference points. They’re – they’re not hard minimums or hard maximums. Those are purely a reference point.”); Ex. 391, 76583DOC003753 ([REDACTED]); Wagner Deposition, 26:22-25, 29:15-21 (for Google, salary bands are guidelines and managers have the discretion to set salaries outside of these guidelines based on performance); Maupin Deposition, 94:24-95:8 (for Lucasfilm, while the market may cause “range structure increases” it does “not directly” lead to individual salary increases because such “salary increases [are] based on their performance”).

⁹⁷ Expert Report of Alan Manning, October 28, 2013, ¶ 8(b)(ii).

⁹⁸ Expert Report of Alan Manning, October 28, 2013, ¶ 46.

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the fact remains that there is nothing about information learned through cold-calling that makes it any different from information conveyed through so many alternative channels.

134. Dr. Manning asserts that “it is not actual movement that is important here, but rather the potential to move. . . . If one has a credible threat to move this is a useful tool in obtaining higher compensation.”⁹⁹ Dr. Manning fails to recognize that any employee has the ability to seek outside employment offers and use that as “a credible threat to move.” More importantly, Dr. Manning and other Plaintiffs’ experts point to no evidence to suggest that actual employee movement is not a proper proxy for recruiting efforts.

135. Moreover, Dr. Manning ignores Defendants’ actual policies and practices on counteroffers. Dr. Manning’s argument breaks down when one considers that [REDACTED]

136. In addition, the rate of new hires into and separations from the Defendants would have provided a broad channel of information about relative market value to employees. If we are to believe, as Dr. Hallock suggests, that information about compensation earned by one is informative of value to others, then movement in and out of the Defendant workforces was so substantial that it is not credible to believe that there could have been a material suppression of price discovery. If Dr. Manning is correct that social networks are an important source of spreading labor market information, then the number of hires and separations at each firm suggests that everyone at the organization would have had current information about the market. Newly hired employees would share labor market information gained at the previous employer and during the hiring process, and departing employees would share labor market information gained during their search for the new job and the new compensation package.

137. Also consider the fact that during the alleged conduct period some Defendants acquired other companies and integrated large increases in workforces in their existing compensation structures. Under Dr. Manning’s theory,¹⁰⁰ the influx of newly-acquired employees would also mean an influx of labor market information which would spread through social networks. In the case of Adobe, it nearly doubled its workforce when it acquired Macromedia in December of 2005. The Macromedia workforce was integrated at all levels such that whatever information regarding market compensation the acquired employees had must have been disseminated across the entire company, under Dr. Manning’s theory. This would have been true for other acquisitions throughout the conduct period.

138. Given the important share of newly hired, acquired employees and departing employees (who possess and spread current labor market information) compared with the share of incumbents (or “stayers”), additional cold calls would not have mattered in a material way. At any given time between 2001 and 2011 and across all seven defendants, the number and share of

⁹⁹ Expert Report of Alan Manning, October 28, 2013, ¶ 51.

¹⁰⁰ Expert Report of Alan Manning, October 28, 2013, ¶ 59.

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employees in the former category was significant. **Exhibit D.2** clearly illustrates this fact – it shows for each Defendant and year, the counts of employees who were hired in that year, separated in that year and stayed from one year to another.

139. Between 2006 and 2009 at Adobe, there were approximately [REDACTED]. At Apple, during the same time period [REDACTED]. At Google this ratio varied from [REDACTED] each year between 2005 and 2009. At Intel [REDACTED]. At Intuit this ratio fluctuated between [REDACTED], at Lucasfilm it varied between 0.4 to 2.9 and at Pixar it ranged from approximately 2 to 4 stayers for each new hire or separation.

VIII. The Market for Technical Employees is Large and Diverse

A. *The U.S. Market*

140. Defendants compete in large and diverse labor markets. Defendants had a presence in various markets, including outside of the San Francisco Bay Area. More than half of the Class members were employed outside of the Bay Area. Portland and Phoenix were the next two largest areas in which Class members were employed. **Exhibit E.1** also shows that Defendants' have employees in many other areas across the country; including the Seattle area and the Boston area. Therefore, considering the U.S. as the relevant market from which Defendants could draw employees and from which Plaintiffs could draw relevant labor market information is appropriate.¹⁰¹

141. Defendants are a small fraction of total employment in the U.S. in Technical, Creative, and R&D occupations ("technical occupations") during the 2001 to 2011 period.¹⁰² **Exhibit E.2** shows the number of employees in these occupations in the entire country and Defendants' total number of employees in the U.S. Defendants' headcount in Technical, Creative, and R&D is between 1.1 and 1.5 percent of Total Employment in the U.S. in these occupations during this period. For example, in 2005, total U.S. employment in technical occupations was 3.1 million people while Defendants employed 40,470 people in these occupations, or 1.3 percent of the total number of people employed in these occupations in the U.S. The alleged conspiracy and resulting pay decisions made by Defendants could not have affected the market for these occupations since Defendants constituted such a small fraction of the market.

142. Furthermore, each Defendant paid their employees in technical occupations significantly more than the non-Defendant firms in the U.S. market during the 2001 to 2011 period. **Exhibit**

¹⁰¹ I understand that Plaintiffs allege Defendants' conduct affected commerce throughout the United States. Consolidated Amended Complaint, p. 7.

¹⁰² Total Employment in the U.S. for Technical, Creative, and R&D Occupations is obtained from the Bureau of Labor Statistics, Occupational Employment Survey (www.bls.gov/oes).

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E.3 compares Defendants' average base compensation and the national average annual wage (which includes base salary and production bonuses). Base salary paid by Defendants to employees in these occupations is consistently higher than non-Defendants' base plus production bonuses for employees in the same occupations.¹⁰³ In fact, during the conduct period, Defendants' pay increased relative to the market. For example, Defendants' pay in 2004 was approximately 37 percent higher on average relative to the market. In turn in 2009, it was approximately 46 percent higher relative to the market. Note that this is a conservative comparison, as I am comparing Defendants' base salary with the market base plus incentive pay. If I was to include incentive payments made by Defendants to its employees, the difference wage premium received by Defendants employees would be significantly higher relative to market pay.

B. San Francisco Bay Area

143. Even if I consider the Bay Area alone, Defendants do not account for a very large portion of the market. During the 2001 to 2011 period, Defendants' employees represented on average approximately 7.7 percent of all employees in the Bay Area employed in technical occupations. **Exhibit E.4** shows the size of each Defendant relative to the market. In 2005, for example, Defendants employed 11,508 people in technical occupations, which represents 7.1 percent of the total employment in the area for technical occupations in that year (approximately 163,000 people). See **Exhibit E.5**. Hence, pay decisions made by the Defendants could not have affected the market for these occupations since Defendants constituted a small fraction of the market.

144. In the Bay Area, Defendants also paid their employees considerably more relative to the market pay, with this difference growing during the conduct period. In 2007, for example, Defendants paid their employees on average \$116,152 in base pay while the average market pay (base salary plus incentive pay) was \$93,219. See **Exhibit E.6**. Hence, Defendants' pay was approximately 25 percent higher than market pay. Defendants' pay premium could be even higher if I had compared Defendants base plus incentive pay with the market pay.

C. Portland and Phoenix

145. Intel has a large presence in both the Portland and the Phoenix areas. Especially in Portland, Defendants (Intel in particular) accounted for around one-fifth of people employed in technical occupations in the area.¹⁰⁴ For example, in 2008, out of the 31,300 people employed in technical occupations, 9,112 were employed by the Defendant(s), as shown in **Exhibit E.7**.

146. The proportion of technical employees employed by the Defendants in Phoenix during the period was smaller. In 2005 for example, about 15 percent of people employed in technical occupations in the area were employed by the Defendants. See **Exhibit E.8**.

147. In both the Portland and the Phoenix areas, Defendants paid a premium relative to market, and the premium tended to grow during the conduct period. In Portland for example, in 2004,

¹⁰³ [REDACTED]

¹⁰⁴ Google did not have a significant presence in Portland.

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immediately before the start of the conduct period, Defendants paid about a 30.6 percent premium over the market pay. By the end of the conduct period, in 2009, the pay premium was approximately 40 percent. Despite the Defendants' significant presence in the Portland area, Defendants paid their technical employees a very large premium relative to market pay. See **Exhibit E.9**.

148. In Phoenix, Defendants also paid a large premium relative to market pay during the 2001 to 2011 period, with the premium increasing during the conduct period. See **Exhibit E.10**.

VI. Dr. Hallock's Assertion That Defendants' Reliance on External Market Data Would Have Propagated Any Suppression Is Unsupported And Unreliable

149. Defendants used market data to provide guidance on compensation for its employees. For example, Adobe purchased market survey reports published by various companies each year.¹⁰⁵ Adobe's compensation team reviewed the market data job by job, as compared to Adobe's jobs, to assess whether Adobe was aligned with the market.¹⁰⁶ For jobs where the salary guideline was behind the market, it adjusted upward the salary ranges for those particular jobs to meet the target market percentile.¹⁰⁷ Similarly, Intel benchmarked job codes in grade to market survey job code in grade.¹⁰⁸ Other Defendants had similar practices.¹⁰⁹

150. Dr. Hallock argues that Defendants' use of external market data provides another form of propagation mechanism to depress salaries for the entire Class. Dr. Hallock argues that since Defendants benchmark against external pay data, if that data includes information that is lower than it otherwise would have been, then propagation will occur.¹¹⁰

151. Testimony from Defendants' human resource employees reveals that Defendants used external market data to provide guidance on compensation metrics, such as a metric for salary ranges or a metric for merit salary increase budget. Changes in salary ranges and changes in overall budget does not mean changes to individual salaries, which are adjusted by managers based on performance.¹¹¹

¹⁰⁵ Arriada-Keiper Deposition, 16:16-17:13.

¹⁰⁶ *Id.* at 18:8-18.

¹⁰⁷ *Id.* at 20:4-16.

¹⁰⁸ McKell Deposition, 89:6-11.

¹⁰⁹ *See, infra*, footnote 57.

¹¹⁰ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶198.

¹¹¹ Arriada-Keiper Deposition, 23:24-25 (for Adobe, if salary ranges increase, individual salaries do not increase); *Id.* at 24:4-22 ("it becomes manager's discretion" as to whether to raise a sub-minimum salary up to the minimum in the range); Maupin Deposition, 94:24-95:8 (for Lucasfilm, market may cause "range structure increases" but it does "not directly" lead to individual salary increases because such "salary increases [are] based on their performance"); McAdams Deposition, 29:8-10 (for Pixar, employee offers and salaries are "usually within that salary range."); Burmeister Deposition, 55:13-19 (for Apple, "salary ranges are reference points. They're – they're not hard minimums or hard maximums. Those are purely a reference point."); Ex. 391, 76583DOC003753 [REDACTED]; Wagner Deposition, 26:22-25, 29:15-21 (for Google, salary

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152. As discussed above, individual salary outcomes are highly variable, and continued to be highly variable during the conduct period, as a result of large salary bands and individual managerial decisions on how much to pay employees. These decisions are based on individualized characteristics of each employee, including performance and expected future contributions to the firm. The same is true for starting salaries of new hires. New hires before, during, and after the conduct period received offers that were dispersed within the salary structure, demonstrating new hires are assessed according to the skills and experience they bring into the job, and these assessments are made on an individual basis.

153. Hence, given that Defendants only use external market data as a guiding tool to set salaries and all that I have discussed regarding variance in pay outcomes for individuals, it is highly implausible that external market is a vehicle for the propagation of depression in salary.¹¹²

154. Moreover, not all Defendants used the same market compensation surveys. For example, Lucasfilm used data from Croner Games for certain technical jobs, in which no other Defendant participated.¹¹³ Named plaintiff Siddharth Hariharan was employed by Lucasfilm. Assuming his pay was suppressed due to the DNCC agreements, Dr. Hallock suggests that reporting his pay to Croner, somehow impacted nearly all Class members employed by other Defendants even though no other Defendant purchased or benchmarked against Croner survey data.

155. [REDACTED]. For example, [REDACTED].¹¹⁴ Intuit relied only on the general survey data and not specific companies or market cuts.¹¹⁵ [REDACTED]

(continued...)

bands are merely guidelines, and managers have the discretion to set salaries outside of these ranges based on exceptional performance).

¹¹² [REDACTED]

¹¹³ Maupin Declaration, ¶¶ 13(iii), 14 (Lucasfilm used data from Croner Games for certain technical jobs, which no Defendant participated in from 2005 to 2011).

¹¹⁴ Burmeister Deposition, 164:18-165:3.

¹¹⁵ Stubblefield Deposition, 24:1-8 (discussing Intuit's general use of Radford market data and stating that Intuit had not used "select market cuts or pulled specific companies out of the data.") .

¹¹⁶ McKell Declaration, ¶¶ 7, 8, 14; McKell Deposition, 181:19-182:13, 197-199.

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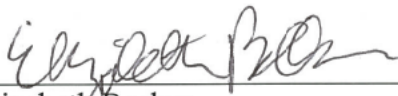
Class members employed by Adobe, even though Adobe's Class does not include a chemical engineer position. [REDACTED]

156. [REDACTED]

[REDACTED]¹¹⁹ As support, Dr. Hallock cites Lucasfilm's change of its "payment targets" from the 50th percentile of the market to the 65th percentile of the market.¹²⁰ This adjustment, which applied to only a portion of the jobs at Lucasfilm,¹²¹ does not support plaintiffs' propagation theory. [REDACTED]

VII. Conclusion

157. I have reviewed Defendants' deposition transcripts, documentary evidence, and compensation data to determine whether Plaintiffs' experts' assertions regarding the propagation effects of the DNCC agreements on compensation are supported by theory or facts. I find substantive evidence that is directly contrary to their assertions about broad-based suppressive effects of the DNCC agreements on the compensation of Class members.


Elizabeth Becker

11/25/2013
November 25, 2013

¹¹⁷ Morris Declaration, ¶ 19 (for Adobe, salary ranges are based on market data from approximately 25 companies); Wagner Declaration, ¶¶ 7-8 (for Google, base salary ranges built from market survey benchmarking, whereby it examines pay data from multiple surveys that pertains to hundreds of companies.); Stubblefield Deposition 24:1-8 (for Intuit, the company only used general Radford market data and did not "pull[] specific companies out of the data."); McKell Declaration, ¶ 7 McKell Deposition, 87:22-24, 88:6-20, 89:6-7 [REDACTED];

McAdams Declaration, ¶ 13 (for Pixar, it requested the "Bay Area" or "Northern California" cut of Radford data, which includes hundreds of companies.); Maupin Declaration, ¶¶ 13(iii), 14 (for Lucasfilm, it used data from Croner Games for certain technical jobs, which no Defendant participated in from 2005 to 2011); Burmeister Declaration, ¶ 4 (for Apple, it used [REDACTED] a list of peer companies which included approximately twenty other companies, only two of which (Google and Intel) are defendants in this case).

¹¹⁸ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 239.

¹¹⁹ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 239.

¹²⁰ Expert Witness Report of Kevin F. Hallock, October 27, 2013, ¶ 239.

¹²¹ Maupin Declaration, ¶ 23; Chau Deposition, 34-36, 125; Condiotti Deposition, 32:21-33:15.

¹²² Maupin Deposition, 94:24-95:8; Van der Voort Deposition, 204;